IN THE CLAIMS

Please amend the claims as indicated below.

1. (Currently Amended) A reflectance sensor, comprising:

a) an optical unit, (A) which comprising: es

aa) a light source (Aa) comprising a lamp, ; and

ab) a fiber-optic system comprising fibers comprising an optical waveguide fiber s (Ab), at least one optical waveguide beingand a reference waveguide fiber;,

b) a sample analysis unit (B), comprising:

ba) a measuring window (Ba),; and

bb) a removable sample analysis cell; (Bb), and

a system control unit, comprising:

a detector for recording measured data; and

an evaluation device connected thereto;

wherein the optical unit is being arrangeddisposed on a first one side of the measuring window and the sample analysis cell beingis disposed arranged on the othera second side of the measuring window opposite the first side;,

by saidwherein the analysis cell is being pressed against the measuring window to form a gap in such a way that, between the said measuring window and the said analysis cell,

wherein the a gap is formed which must be traversed by a sample to be measured in the form of a liquid pigment preparation, the sample being sheared considerably as it traverses the gap,

~~and~~

~~c) a system control unit (C) comprising detectors (Ca) for recording measured data and an evaluation device (Cb) connected thereto,~~

wherein ~~at least one~~ the optical waveguide fiber ~~connection~~ extends from ~~being led from~~ the light source ~~(Aa)~~ to the measuring window, ~~(Ba)~~ and from the measuring window ~~(Ba) onward~~ to the detector ~~(Ca)~~, to generate a measured reflectance signal ~~(reflectance of product);~~, and

further wherein~~at least one~~ the reference waveguide fiber ~~connection leading~~ extends directly from the light source ~~(Aa)~~ to the detector ~~(Ca)~~ or from the measuring window ~~(Ba)~~ to the detector ~~(Ca)~~ to produce a reference signal. ~~, wherein the analysis cell is removable.~~

2. (Canceled)

3. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein the lamp is selected from the group consisting of LEDs, gas discharge lamps and lamps with incandescent filaments.

4. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein the lamp ~~has~~ comprises an integrated shutter.

5. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein the optical waveguides ~~are fibers of at least one of~~ fiber has a diameter of 100 µm, 200 µm, 400 µm, 600 µm, or ~~and~~ 800 µm. ~~fiber diameter.~~

6. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein ~~the~~ a diameter of the ~~fiber used as a~~ reference waveguide fiber ~~has a diameter which is one of matched~~ is equal to or ~~and~~ smaller than a diameter of the ~~, the remaining~~ optical waveguide fiber. ~~s.~~

7. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, further comprising: ~~at least one of the following features:~~

~~ac)~~a compensation filter downstream of the lamp, ~~arranged behind the lamp~~, that linearizes ~~the~~ a spectrum from the lamp such that ~~the~~ a difference between ~~the~~ a highest and lowest intensity of the light beam~~emitted by the lamp~~ is at most a factor 4;~~,~~

~~ad)~~an IR blocking filter, a condenser and a scattering disk ~~arranged behind the lamp or~~downstream of the lamp; ~~between lamp and compensation filter if a compensation filter is used,~~

~~ae)~~a protective tube comprising the optical waveguide fiber and a supporting frame that supports the optical waveguide; ~~s are led in protective tubes and supported over their entire length by means of a supporting frame,~~

~~af)the reference waveguide is led via~~ a precise spacing element with an incorporated scattering disk comprising the reference waveguide fiber, and attenuated in a defined manner;

or a combination thereof.

8. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein the measuring window is a 1 to 12 mm thick and 10 to 80 mm in diameter plane plate, the plane plate selected from the group consisting of glass, semi-precious stones and diamond.~~, and is 1 to 12 mm thick and 10 to 80 mm in diameter.~~

9. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein a length of the gap is 2 to 15 mm, ~~long,~~ a width of the gap is 2 to 40 mm, ~~wide~~ and a height of the gap is variably adjustable between 0.05 and 5 mm. ~~high, the exact height being variably adjustable.~~

10. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein the ~~shearing of the~~ sample is sheared ~~is achieved~~ by a pressure drop of 0.1 to 3 bar in the gap over a length of 1 to 15 mm from ~~the~~ an entry point to an exit point of the sample. ~~into the gap as far as its exit point of 0.1 to 3 bar over 1 to 15 mm length.~~

11-12. (Canceled)

13. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, wherein the system control unit ~~has~~ comprises detectors ~~in the form~~consisting of fiber-optic monolithic diode-line sensors ~~which~~ that ~~permit~~ provide a resolution of at least 15 bits.

14. (Currently Amended) The reflectance sensor ~~as claimed in~~of claim 1, ~~wherein all the units of the reflectance sensor are accommodated~~disposed in a common housing comprising ~~, in which~~ a ventilation and a thermostat-controlled heat dissipation~~are carried out.~~.

15. (Currently Amended) A method of measuring a ~~the~~ reflectance of a ~~sample in the form of a~~ liquid pigment preparation~~,~~ with a reflectance sensor ~~as claimed in claim 1~~, the reflectance sensor comprising:

an optical unit, comprising:

a light source comprising a lamp; and

a fiber-optic system comprising fibers comprising an optical waveguide fiber and a reference waveguide fiber;

a sample analysis unit, comprising:

a measuring window; and

a removable sample analysis cell; and

a system control unit, comprising:

a detector for recording measured data; and

an evaluation device connected thereto;

wherein the optical unit is disposed on a first side of the measuring window and the sample analysis cell is disposed on a second side of the measuring window opposite the first side;

wherein the analysis cell is pressed against the measuring window to form a gap between the measuring window and the analysis cell,

wherein the gap is traversed by a sample to be measured in the form of a liquid pigment preparation, the sample being sheared considerably as it traverses the gap,

wherein the optical waveguide fiber extends from the light source to the measuring window, and from the measuring window to the detector, to generate a measured reflectance signal; and

further wherein the reference waveguide fiber extends directly from the light source to the detector or from the measuring window to the detector to produce a reference signal;

the method comprising:

~~i)~~forming a sample stream with a defined thickness, the sample consisting of the liquid pigment preparation; ~~,~~

~~ii)~~irradiating the sample stream with electromagnetic radiation emitted by ~~a~~ the light source, the electromagnetic radiation interacting with the sample and some of the radiation being reflected diffusely following interaction with the sample;~~,~~

~~iii)~~receiving and ~~registering~~ measuring the diffusely reflected radiation as ~~a~~ the measured reflectance signal;~~,~~

~~iv)~~receiving and ~~registering~~measuring electromagnetic radiation emitted by the light source which does not interact with the sample as the ~~a~~ reference signal; ~~, the reference signal being electromagnetic radiation emitted by the same light source which serves to irradiate the sample stream but which does not interact with the sample~~,

the measured reflectance signal and the reference signal being ~~registered~~ measured simultaneously.

16. (Canceled)

17. (Currently Amended) The method of claim 15, wherein:

~~the reflectance of~~ measuring the reflectance of the liquid pigment preparations~~s~~ is ~~measured in~~during a process stage in the production of the liquid pigment preparation, further processing of the liquid pigment preparation, or use of the liquid pigment preparation;~~s,~~

wherein ~~said~~ the process stage comprises ~~is at least one of~~ quality control during the dispersion of pigmented coatings and pigment pastes, quality assessment during coating production, controlling a metering system during ~~the~~ formulation of coatings by mixing various liquids, automatically controlling color adjustment by means of tinting during coating production, matching ~~the~~a color of ~~the~~a coating in a coating system that comprises ~~which has~~ a metering system for colored pastes, or ~~and~~ monitoring subsequent color changes as a result of ageing or shear stressing. ~~of pigmented coatings or pigment pastes.~~

18-19. (Canceled)